LOUISIANA conservationist

MAY-JUNE, 1975

...comments

Doubt and mistrust are the mere panic of timid imagination, which the steadfast heart will conquer, and the large mind transcend.
—Helen Keller

J. Burton Angelle, Director

During the past few months numerous individuals and organizations have expressed doubt and concern about the future disposition of funds generated by the Louisiana Wildlife and Fisheries Commission. They are concerned by the fact that with certain exceptions, Article VII, Section 9 (B) mandates that all state money deposited in the state treasury shall be credited to the Bond Security and Redemption Fund under the new constitution.

In each fiscal year an amount is allocated from this fund to pay all obligations which are secured by the full faith and credit of the state and which become due and payable within the current fiscal year. The said article of the new constitution further provides that the remaining balance goes to the State General Fund.

Basic questions being raised by sportsmen, organized sportsmen's clubs, the Louisiana Wildlife Federation, chapters of Ducks Unlimited around the state, and others, are "What will happen to the Conservation Fund? What about the Rockefeller Wildlife Refuge Funds? What will happen to the Russell Sage or Marsh Island Refuge Fund?"

Some hunters are quick to say "We pushed for the hunting license fee increase feeling that the additional money would go for land acquisition and other worthy wildlife programs. Will the many action programs of the Louisiana Wildlife and Fisheries Commission come to a grinding halt?"

I doubt it. It would be contrary to the will of Governor Edwin Edwards, contrary to the intelligence and integrity of the legislature, not representative of the astuteness of those members of the constitutional convention, and certainly renounced by the citizenry of Louisiana.

Even the staunchest proponents and supporters of the constitution of 1974 will readily admit that a perfect document was not produced. Delegates to the constitutional convention collectively could be likened to a carver of decoys. A block of cypress was selected and with knife and rasp the long, monumental task of creation was begun. Even when the product was finished, it was recognized that the final delicate touches would have to be accomplished by legislation or amendment.

But the new constitution replaced an antiquated, unwieldly document that was conflicting, confusing, and had long since served its purpose. It is true of any document produced by man that it is certain to contain oversights and omissions. I am strongly confident that these inadvertencies will be corrected as they emerge.

As these remarks are being written, an "Opinion by the Attorney General" is being widely circulated. It details the *present* status of The Conservation Fund, The Rockefeller Fund, and The Russell Sage or Marsh Island Fund. It is an accurate and legal interpretation of disposition of those funds under the new constitution.

I hasten to assure readers that the opinion was prepared by the attorney general at my request. It would have been impossible for the commission to chart a course of action in the legislature and seek the full support of Governor Edwards and the legislature if what we were to seek was based upon hearsay, inaccurate interpretation of the provisions of the new constitution.

We now have that opinion and have already begun initial steps that should lead to corrective legislation. I ask those who have evidenced panic to wait and be patient, certainly not abusive, disdainful, or derogatory.

Let us look at the big picture and take a mental inventory. Our commercial fisheries is one of the most extensive in the country, providing a livelihood for thousands of persons, not only in actual fishing but also in the many related industries that run the gamut from freezer plants to transportation companies. Our fur industry is second to none in the country and is an important part of the overall economy of the state.

Hunting and fishing in Louisiana is big business. We are just starting to realize that these two sports represent a multi-million dollar annual expenditure in goods and services.

In addition to hunters and fishermen, there are tens and tens of thousands of persons who seek outdoor recreation each year boating, birdwatching, hiking, walking nature trails, and generally enjoying being exposed to wildlife in a wholesome environment.

I can assure you that the Louisiana Wildlife and Fisheries Commission, which has always operated upon self-generated funds and not tax dollars, will not be improperly funded to carry out and even enlarge its programs, nor will its self-generated fund be dissipated or diverted to less meaningful purposes.

I can also assure the people of Louisiana that Governor Edwards and the Louisiana Legislature are aware of this particular problem.

LOUISIANA
conservationist

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EDWIN W. EDWARDS, Governor

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Front and back covers by Lloyd Poissenot.
(Front cover) Deer feeding in an oak grove.
(Back cover) The Coyote—*Canis latrans.*

I give my pledge as an American to
save and faithfully to defend
from waste the natural
resources of my country—its soil
and minerals, its forest, waters
and wildlife.

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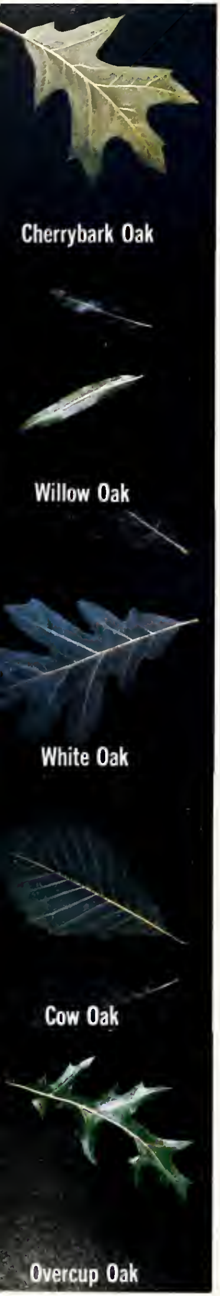


acorns a la carte

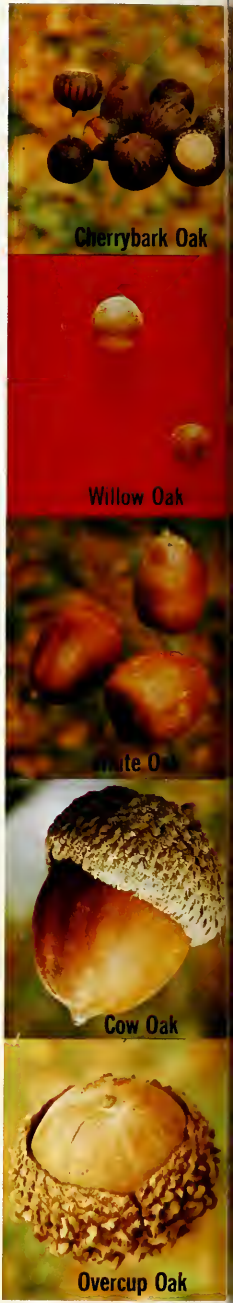
By Bill Winn and Ray Palermo

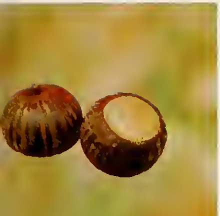
Photography for this article courtesy of Lloyd Poissenot, Ray Palermo, and the Louisiana Forestry Commission.

Many Louisiana outdoorsmen have long recognized the important role oak trees play in the lives of game animals. Almost every squirrel hunter in the state has his favorite oak flat where he is certain to find a congregation of bushytails when October rolls around.

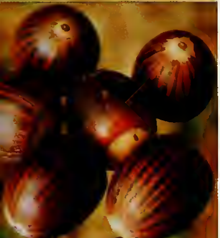
Consistently successful deer hunters often frequent the same hidden oak grove year after year, confident that sooner or later that big buck will materialize out of the morning mist to sample the acorns on the ground. Wild turkey hunters are always on the lookout for isolated stands of oaks in the deep woods, knowing that gobblers usually locate their winter range where oak acorns are available. Experienced quail and duck hunters are aware of the distribution of oaks on their favorite hunting grounds because acorns are an important part of the diet of these tasty game birds. And master hunters, particularly those who pursue the wily whitetail, even know which *type* of oak acorns are preferred by their quarry.

Most hunters tie oaks in with the food habits of game animals, and rightfully so because, especially in winter, oak acorns, or "mast," as biologist call them, are the staff of life for much of the animal world in Louisiana and across the entire Southeastern United States. More than 90 animals depend on oak mast as either a staple or supplementary food source in their diets, and, generally speaking, to know the location of oak trees in a given area is to have a good line on where the majority of game animals will be found.

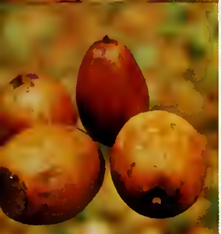




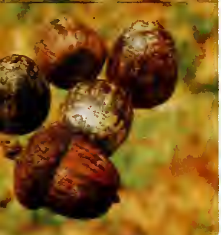
Southern Red Oak



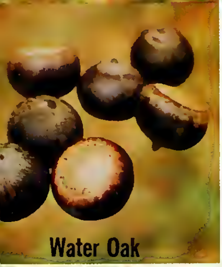
Nuttall Oak



Post Oak



Shumard Oak



Water Oak

A partial listing of Louisiana game and fur bearing animals which feed on oak mast includes deer, bear, raccoons, squirrels, wild turkey (77 black oak acorns were once found in a single dead gobbler), fox, beaver, opossums, quail, and a variety of ducks, among them mallards and wood ducks. Of course, many animals, ranging from songbirds to chipmunks, other than game or fur bearers consume oak mast.

Acorns possess high nutritive content. They contain about five per cent protein and fifty per cent carbohydrates. Carbohydrates are especially important to wildlife for heat and energy in winter. Acorns are also a good supply of potassium, calcium, and magnesium. Because of their high nutritional value, and because they are usually an abundantly available food source, acorns rank near the very top of the wildlife food list. In fact, when, for whatever reasons, acorns are not available in their accustomed abundance, many wildlife species, including game animals, are hard pushed to survive.

As almost all squirrel hunters know, the so-called "poor mast years," when acorns are in short supply, are usually followed by a greatly reduced squirrel population the next season. Some outdoorsmen will have observed that poor mast crops are also reflected in the overall condition of deer in late winter and in smaller antler formation the following fall and winter. Note that these results are observable after only *one* poor mast crop. Repeated failure of the mast crop, such as occurs when oaks and other mast producing hardwoods are cleared from our forests in great numbers, can result in the disappearance of game and many other animals. In fact, such a catastrophic result is a virtual certainty. *For their food value alone, oaks and other mast producing trees are absolutely essential to the survival of much of Louisiana's wildlife population.*

But oaks play many more roles in the ecology of our wildlife habitat than that simply of a food producer. Like most life forms, oak trees have complex interrelationships with other animals and plants. In addition to their function as mast producers, oaks:

—furnish a large quantity of good browse (deer are particularly fond of the tender twigs in spring and summer).

—provide den and nest sites and nesting materials for many birds and animals, including a variety of songbirds, woodpeckers, wood ducks, hooded mergansers, fox and gray squirrels, flying squirrels, raccoons, mink, opossum, bear, bobcat, and many others.

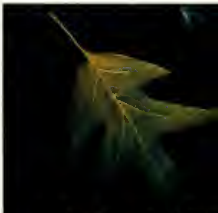
—serve as homes for various insects which, in turn, are used as food by many birds, including the yellow bill cuckoo, woodpeckers, the flycatchers, and others.

—act as soil stabilizers and retain runoff water in decaying leaves.

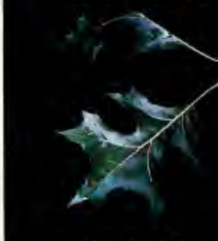
—provide food in the form of decaying leaves for such beneficial animals as the earthworm, which aerates the soil and prevents compaction.

—serve as cover, shelter, and playing sites for many forms of wildlife, including almost all game animals found in the state.

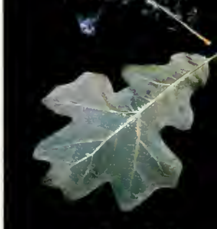
This is only a partial list of the functions oak trees perform in our wildlife environment, but it affords some idea of the importance of oaks and other mast producing hard-



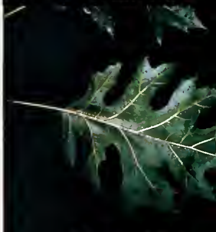
Southern Red Oak



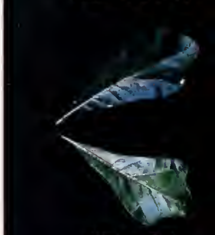
Nuttall Oak



Post Oak



Shumard Oak



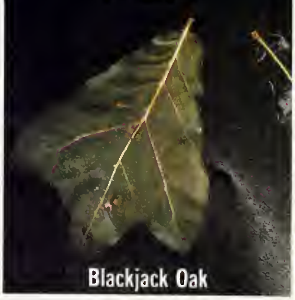
Water Oak

woods in our forests. "Hardwoods" is a term used to distinguish broad-leaved, deciduous (meaning with leaves that fall off seasonally) trees from coniferous, cone bearing, trees or the so-called "soft woods." Hardwoods include such trees as oaks, hickories, maples, ashes, elms, sweetgums, sycamores, and other broadleaf trees. Softwoods are mostly pines. Many hardwoods in addition to oaks produce mast, incidentally, and among them are hickory, pecan, and beech. However, for quantity and quality of mast produced, oaks far outstrip any other mast-producing-trees in value to wildlife.

Oaks of many types are found throughout Louisiana, from the moss draped live oaks of our coastal marshes to the southern red and sandjack oaks of our northern hills. Oaks show great variety in leaf shape, acorns, bark, tree silhouette, and wood, making it quite a task to master the identification of all types.

Live Oak

Laurel Oak



Blackjack Oak

However, oaks may be divided in two broad groups—the white oaks and the red oaks. In Louisiana, oaks important to wildlife in the white group include the white, overcup, post, and swamp chestnut (or cow oak, as it is often called because cattle eat the acorns). Those in the red oak group which are important to wildlife include the southern red, shumard, nuttall, blackjack, sandjack (sometimes called bluejack because its leaves are a blue-green color), willow, water, obtusa, cherrybark, and live. Tree experts break these groupings down further—cow oaks and live oaks, for example, are regarded as subsections of the white and red groups respectively. However, for purposes of identification the larger groupings suffice.

Characteristics of the white oak group which are important and which may aid in identification are:

—1. Acorns mature in one season.
—2. Leaf lobes are rounded.
—3. Shells are hairless inside.
—4. Meat of acorns is not bitter.

Important characteristics of the red group include:

—1. Acorns usually require two years to mature.
—2. Leaf lobes are bristle-tipped.
—3. Shells are hairy on the inside.
—4. Meat of the acorn is bitter.

Although there is considerable evidence that many forms of wildlife prefer the sweet acorns of the white oak group, perhaps our most important oak to wildlife is the water oak. This is because of its wide distribution and usually abundant mast crop. However, all the trees listed above are important food sources to Louisiana wildlife.

Studies carried out by the Louisiana Wildlife and Fisheries Commission reveal that bottomland species produce more acorns than upland species. Acorns also vary considerably in size, meaning that a tree which produces few but large acorns is of equal value in food production to a tree that produces a large crop of small acorns.

Oaks usually begin producing acorns when about 15 years old, and the trees are normally at peak production when they are about 50 to 75 years old. Although oaks will

Above: What once previously was bottomland hardwoods now stands as barren as a desert because of land-clearing practices. Wildlife won't live here! Opposite page, bottom: In pure pine stands, hardwoods are eliminated via a process called "T.S.I." (timber stand improvement). But it's hardly an improvement where wildlife is concerned.

sometimes live more than 100 years, acorn production in later years will probably be light and sporadic. For these reasons, "middle-aged" oaks are vitally important as mast producers, and it is these trees which are impossible to replace in our forests.

Like all trees, oaks do not produce bumper mast crops every year. Sometimes natural disasters, such as late freezes, drought, hurricanes, and floods are responsible for mast failures. Oaks, in fact, normally produce varying mast crops even without such disasters. This is due to the production, storing, and draining of stored food in the tree roots. In addition, acorns are subjected to heavy damage by weevils.

Individual oak species show marked preference for soil types and geographic location. Again, for purposes of identification, these species fall into four "timber types:"

BOTTOMLAND HARDWOODS: nuttall, overcup, water, willow, live, and laurel.

SHORTLEAF-LOBLOLLY PINE-MIXED HARDWOODS: shumard, white, cow, southern red, water, willow, live, and post.

LONGLEAF PINE: water, willow, southern red, sandjack, blackjack, post, white, and cow.

UPLAND HARDWOODS: cherrybark, water, shumard, willow, and white.

Knowledge of where a particular oak is usally found can be a great aid in identification.

Although oaks of many types are still widely spread throughout the state, there has been a tremendous change in recent years in both their number and distribution. Originally, Louisiana had more than 5.6 million acres of bottomland hardwoods. In 1961, it had been reduced to 3.3 million. By 1968, it was down to 2.5 million. Today, there are approximately 2 million acres of bottomland hardwoods in our state, and it has been estimated that within a decade that number will have been reduced to 1 million.

Since the game animal carrying capacity of much of our wildlife habitat is directly related to the presence of oaks and other mast producing hardwoods, it is a virtual certainty that the sport of hunting will suffer disastrous effects unless steps are taken to check the destruction of these irreplaceable trees. Moreover, destruction of our hardwoods, particularly bottomland hardwoods, will do great damage to sport and commercial fishing within the state.

The bottomland hardwood forests are crisscrossed by rivers and streams and patterned with scattered lakes and ponds which annually produce tons of crawfish and commercial fish and afford thousands of man-hours of fishing recreation for outdoorsmen. Among the species that will suffer greatly at the disappearance of this prime hardwood environment are such favorite sport fish as black bass, bream, and crappie, and such important commercial species as buffalo and catfish. Crawfish, important for both commercial and recreational programs, will also suffer. Indeed, Louisiana fishermen as well as hunters—and anyone who enjoys the outdoors—have cause to be alarmed at the rapid disappearance of hardwoods all over the state.

Most of the destruction of our mast producing trees has come about since the mid-1960's, and is directly attributable to economic factors. The construction of drainage canals to siphon water off bottomlands, massive land clearing for monocrop farming, clearcutting, and T. S. I. (Timber Stand Improvement) have been the principal practices by which enormous quantities of hardwoods and prime hardwood habitat has been destroyed. The first two practices are, of course, primarily associated with agriculture; the last two with the forest industry.

On the ever-changing agricultural scene, the trend for many years has been toward massive one crop or two crop farming operations, usually involving the clearing of tremendous acreages. In upland areas, this involves the razing of any trees, not just oaks and other hardwoods, which would interfere with modern, highly mechanized farming practices and which would tend to break up the single unit planting and harvesting practice. In the delta region and in the bottomlands, canals are frequently built or existing waterways "channelized" to increase runoff, thereby draining huge amounts of land for farming purposes. Of course, both the massive land clearing and drainage practices ultimately lead to destruction of hardwoods and, within a very short period, the disappearance of wildlife.

Whereas upland farms used to afford excellent game habitat, particularly for quail, squirrel, rabbits, and like game species, it is rare now to see a farm which provides suitable cover and food for game of any sort. Instead, vast, empty acreages greet the eye on every side, devoid of wildlife of any kind.

Modern forestry practices which also tend toward a mono crop-pine-economy in the southeastern U.S., have been similarly destructive to our wildlife. This is especially true where formerly healthy and productive stands of oaks and other hardwoods have been clearcut or "thinned out." In the former instance, hardwoods are used for timber products and pines planted in their place; in the latter, hardwoods are removed to allow more room for the development of pure pine stands, the aforementioned Timber Stand Improvement or, as it is popularly known, T. S. I.

Clearcutting has mostly been used in the pine uplands of the state, and is now being practiced on the Kisatchie National Forest. It has absolutely catastrophic effects on wildlife, being analogous to the effects produced by a forest fire.

Since most game species, and a wide variety of other animals, depend on hardwood mast for food or as important supplement to their diets, T. S. I., which is gradually converting thousands of acres of formerly mixed forest to pure pine, is also taking a heavy toll on our state's wildlife population. Louisiana has no game species that prefers a purely coniferous or pine habitat. In fact, it is doubtful that any of our species could survive in a forest devoid of broadleaf trees and shrubs.

Below: For their food value alone, oaks and other mast producing trees are absolutely essential to the survival of much of Louisiana's wildlife populations.
Opposite page: Each year, land is cleared in the bottomland hardwoods at an alarming rate. Some means must be found soon to reverse this trend.

One of the most important features of mixed hardwood forests is the understory growth, prime browsing area for such animals as the whitetail deer. But older pine stands have little or no understory plants, thus eliminating not only mast but browse from the food inventory of the area. Yet, T. S. I. is increasingly being used for forestry purposes, and there is growing economic pressure within the forest industry to convert mixed hardwood and pine stands—called "hardwood-invaded pine sites" in the trade—to pure pine. "Low-quality" hardwoods, including many oaks, are chemically treated or girdled to kill them, and then removed. Thousands of acres of good wildlife habitat in the pine uplands of Louisiana have been treated in this manner.

The Louisiana Wildlife and Fisheries Commission has undertaken a number of programs designed to counteract the wholesale destruction of oak trees.

Since 1969, the commission has been planting oaks on its wildlife management areas. About 1000 acres have been planted in mixed stands on the Red River and Loggy Bayou W. M. A.'s utilizing some 300,000 oak seedlings. These seedlings were planted in open areas which had previously been devoted to row crops when the land was under private ownership. In addition, the commission has planted nearly 200,000 other oak seedlings in scattered areas on the Pearl River, Three Rivers, Bodcau and other W. M. A.'s throughout the state. And in March of 1975 the commission announced its "Oaks for Wildlife" program. At that time, 100,000 oak seedlings were distributed by the commission to private individuals for replanting. Any landowner or resident of Louisiana who wanted to help preserve wildlife habitat by planting oaks on their property could obtain them by contacting the nearest district office of the commission.

The oak program was a spectacular success. In less than 30 days, all 100,000 seedlings had been distributed to individual residents, civic organizations, the Boy Scouts of America, sportsmen's leagues, and conservation organizations. So enthusiastic was the response from the public that the commission was unable to fill many orders for the seedlings.

Persons wanting oak seedlings, incidentally, should hold their requests until next December, by which time the commission will have raised another crop of seedlings for distribution. Biologists have already collected and planted acorns for next year's seedling crop.

Of course, there is nothing to prevent any interested party wishing to help preserve vanishing hardwoods from acquiring acorns or seedlings from sources other than the commission. Anyone can contribute to the effort to preserve and restore oaks by plantings on privately owned land. Before doing so, however, it would be wise to contact the nearest office of the Louisiana Forestry Commission or a wildlife forester from the LWFC for advice on what kinds of oaks grow best in particular areas.

In general, bottomland plantings should consist of nuttall, water, cherrybark, and overcup oaks; hill area plantings should consist of white, shumard, water, cow, sandjack and post oak. However, oaks should be planted anywhere wildlife could use the acorns. Lawn plantings should not be neglected: oaks make excellent shade and ornamental trees, and many forms of wildlife, from songbirds to squirrels, will benefit.

Familiarity with our most important oaks will not only make you a better outdoorsman, it will also greatly increase your enjoyment of our wilderness habitat. Being able to tell a white oak acorn from a post oak acorn might not get you that trophy buck you have been dreaming of, but it will certainly help you to understand the importance of saving hardwood trees. Remember, when oaks are gone, wildlife will be gone.

Unless we find some means of reversing the present land clearing trend which is so destructive to oaks and other hardwoods, we may have, in a very short time, the "great plains" of Louisiana where once there stood the priceless bottomland hardwoods.

WINTER WATER & GREENTREES

By James Emfinger as told to McFadden Duffy

Photography by Lloyd Poissenot

Years ago there were numerous places in Louisiana where a waterfowler could stand in knee-deep water, resting his back against an oak tree, and watch ducks cup their wings and settle down through small openings in branches overhead. The ducks were lured by the skillful calling of the hunter, the sight of a few decoys set in motion by movements of a rubber booted foot, and the certain knowledge that in the shallow water there were acorns in abundance for food.

One could find these hunters in the hardwood bottomlands flooded by fall and winter rains. They could be found in the fringes of the vast Atchafalaya Basin on lands that had not been silted over. These duck hunters were enjoying the same sort of shooting that made the pin oak flats near Stuttgart, Arkansas, nationally famous a generation ago.

Some years, in Louisiana and other states, particularly near Stuttgart, Arkansas, the fall and winter rains came at the right time and in the proper amount to make this sort of duck hunting almost unexcelled. Sometimes there wasn't the proper amount of rain and duck hunters had to look elsewhere to hunt. The alternative was to come up with a water and land management plan that would assure sufficient flooding of oak flats in the fall and winter. This was accomplished back in the late 1930's and the first "greentree reservoir" came into being.

It was quickly learned that greentree reservoirs had many advantages over permanent impoundments. Not only did they attract more ducks than permanent deep impoundments, but they allowed control over the time and extent of timber flooding, initially and primarily for the attraction of waterfowl. The fact became obvious that this seasonal flooding was beneficial to timber production. Permanent flooding would kill the trees so essential to greentree reservoirs and continued mast production.

The building of greentree reservoirs was quickly adopted by other states, as well as federal wildlife managers. By the early 1960's the impoundments could be found in practically every state in the lower Mississippi Flyway.

Accelerated clearing of bottomland hardwoods for agricultural purposes, coupled with channelization that ended natural flooding of still remaining bottomland forests accentuate the need for greentree reservoirs. Because tracts of bottomland hardwoods are being cleared at a progressively fast rate, it has become apparent that greentree reservoirs will become much more popular in the years ahead.

In its program of land acquisition, the

James Emfinger

Borrow pits dug during reservoir construction lend themselves to a year 'round fisheries potential.

James Emfinger

A dependable water supply helps maintain the reservoir at an optimum level.

Flooded timber stands on a greentree reservoir.

Louisiana Wildlife and Fisheries Commission directed its efforts toward obtaining lands which for the most part lend themselves to management programs that include greentree reservoirs. Reference is to the wildlife management areas of the hardwood bottomland type and not the wetland areas which are already suited to waterfowl management.

Greentree reservoirs have been developed by the commission on several wildlife management areas, including Soda Lake, Bodcau, Russell Sage, and Saline. Additional greentree reservoirs have been planned and should be operational in the not too distant future.

Like all wildlife management programs, there are certain prime requisites for greentree reservoirs. These are mast producing trees, suitable soil composition, and preferable flat terrain, plus a dependable water supply. Best results will be obtained in regions already utilized by waterfowl concentrations during fall and winter months.

In spite of extensive land clearing programs, Louisiana still has many areas of bottomland hardwood forests which meet basic requirements for greentree reservoirs. Oaks bearing small acorns are the most desirable mast trees in these man-made seasonal reservoirs. The so-called "pin oaks," water oak, and willow oak, as well as the nuttall oak (striped oak), shumard oak, and cherrybark oak, are important mast producing trees for waterfowl.

It is not merely a coincidence that the more than 100,000 sapling oak trees distributed this spring by the commission in the "Oaks for Wildlife" program contained in great part the above species of oak. Plans have been put into effect to greatly expand the oak planting program next spring and for several years to come. When these trees mature and begin producing mast, those that were planted on the wildlife management areas will lend those areas to consideration for greentree reservoirs.

Usually the soil in these areas is firm, poorly drained clays, and generally the terrain is relatively level. These are important factors in selection of greentree reservoir sites. Tight clay soils hold water well. Nearly level terrain can allow substantial acreage to be flooded with only minimal levee construction and produce a fixed water depth, important in utilization of a reservoir by hunters.

A dependable water supply is of great importance when selecting a site for a greentree reservoir. Water may be obtained from storage reservoirs, diverted from flowing streams, or pumped from wells or nearby lakes and streams. Rainfall may be used to fill the greentree impoundments; however, this is not a reliable source of water since the amount of rainfall may be variable from year to year, and sufficient rainfall may not fall in time to properly flood the shallow reservoir and attract and hold migrating ducks.

James Emfinger

Greentree water control structures are installed to perform efficiently and scientifically.

Because of proved success of greentree reservoirs in attracting and holding waterfowl, they have been constructed by many private landowners. In many cases they are utilized by the owners for the taking of waterfowl. In other instances, landowners have realized additional income by leasing the hunting rights to private individuals and small clubs.

Due to the growing interest of private landowners, it is recommended that when selecting a site for the construction of a greentree reservoir a biological survey be conducted first to evaluate basic requirments of the area. Such a survey quickly will determine the best location for the shallow reservoir.

After the area to be impounded has been selected, an engineering survey should be made to determine the size and type levee and the water control facilities needed. This survey also should provide topographic data about the area. The type of levee system used may vary from area to area, but it should meet certain requirements in general.

A preferred levee should be wide enough for small vehicle traffic and have adequate side slopes well seeded or sodded to prevent erosion. Vegetative cover on the levee should be selected not only for its erosion control characteristics, but to include beneficial wildlife food plants.

Borrow pits are necessarily formed as a result of levee construction. Consideration should be given to whether they are located inside the reservoir or outside the levee. Depending upon size of the greentree reservoir, borrow pits can serve useful purposes. Those left inside the levee will not only facilitate drainage of the reservoir, but will also vastly improve fisheries potential of the impoundment. If sufficiently deep, they will provide year 'round fishing after the water level in the impoundment has been lowered and drawn off to stimulate timber growth.

Water control structures should be of sufficient size and be located to assure maximum water level control. Drainage structures should be designed to drain the entire reservoir, including the borrow pits when necessary for fisheries management or for repairs.

Although greentree reservoirs had their inception as the result of seasonal flooding by fall and winter rains, today's greentree reservoirs are dependent upon a ready source of water. This supply for the impoundment should be adequate so that the area can be flooded sufficiently in a reasonable time. It should also be dependable as additional water may be necessary at times to maintain the proper water level. Some soils may absorb more water than desirable and availability of water should not be a deterrent if proper timber exists and terrain is suitable for a greentree reservoir.

The two major species of ducks using greentree reservoirs are wood ducks and mallards. They feed primarily on oak mast but also utilize food plants that may occur within the impoundment. Selective removal of undesirable trees will greatly benefit mast production, as well as encourage growth of wildlife food plants such as smartweed and native grasses. Small clearings can be cut within the reservoir or be created by eliminating undesirable trees. The resultant areas can be planted with desirable food plants, increasing usage of the reservoir by additional species of waterfowl. Among plants suggested for this purpose are brown top millet, Japanese millet, or grain sorghum.

The success of greentree reservoirs, properly constructed and managed, has been proved repeatedly. Management is important, with the reservoir flooded to the desired level at least two weeks prior to the opening of waterfowl season. A water depth of from one inch to 18 inches is ideal for feeding waterfowl and considered optimum water level. Topographical data collected in the engineering survey is invaluable in determining proper water levels.

A normal and frequent question is, "How large should a greentree reservoir be?"

Experimentation through the years has indicated that impoundments for private hunting should contain a minimum of 200 acres. Public use reservoirs should be larger and certainly not less than 400 acres. Depending upon area and anticipated usage, it is easier to build a large reservoir during initial constructon than go back later and enlarge one. Size of large impoundments should be predicated on size of the area as far as mast trees are concerned, topography, and availability of water.

Control of hunting pressure on greentree reservoirs is important. Heavy or constant hunting pressure will cause waterfowl to abandon a reservoir. Half-day shooting, or alternate-day gunning is recommended. If necessary, the actual number of hunters should be limited.

Dewatering or draining the surface level of the impoundment at the proper time is vital to the health of mast-bearing timber and its summer growth. Where a greentree reservoir is used solely for waterfowl hunting, it is generally drained immediately following hunting season. If multiple use is desired, the water can remain for a longer period. This will provide fishing opportunity and crawfishing in some areas of the state.

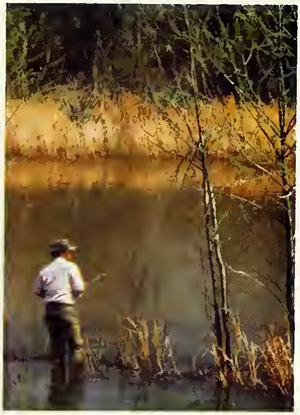
With the development of greentree reservoirs, a major consideration has been possible timber damage from prolonged fall and winter flooding of the timber. Studies have been conducted which show that dormant season flooding of bottomland hardwoods is not only harmless but actually beneficial to both timber growth and mast production. After surface water has been drained, normal rainfall will not reflood an area except under unusual circumstances. In this event, the impoundment can be drained just as it is after seasonal use.

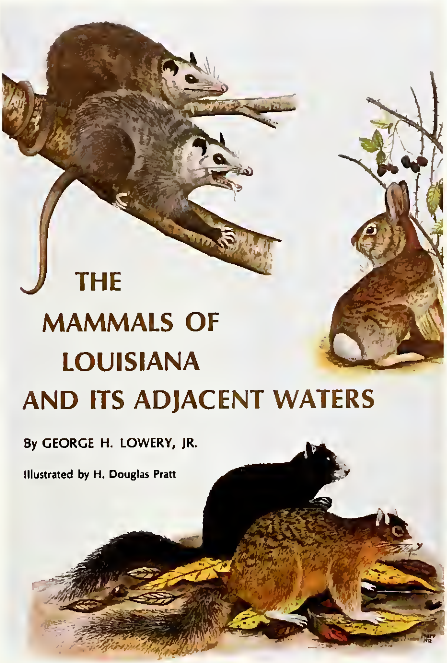
Normal maintenance includes levee clipping and keeping water control structures in good condition. Food plots must be maintained on an annual basis.

Although greentree reservoirs are primarily designed for waterfowl hunting, they are actually highly versatile wildlife management tools. The large mast crops produced are utilized by squirrels and deer, as well as raccoons and other forms of wildlife. Because flooding is often held off until about two weeks before waterfowl season opens, the large stands of mast-bearing trees also offer excellent squirrel hunting, and often deer hunting. Deer, in particular, are provided with escape cover even during the flooded period because the water depth is not great.

Fishing and crawfishing are extra bonuses for those who have private greentree reservoirs or access to those on wildlife management areas. They represent enhanced wildlife habitat.

There is little doubt in the minds of wildlife managers that greentree reservoirs will play increasingly important roles in supplying high quality outdoor recreation in the years ahead.

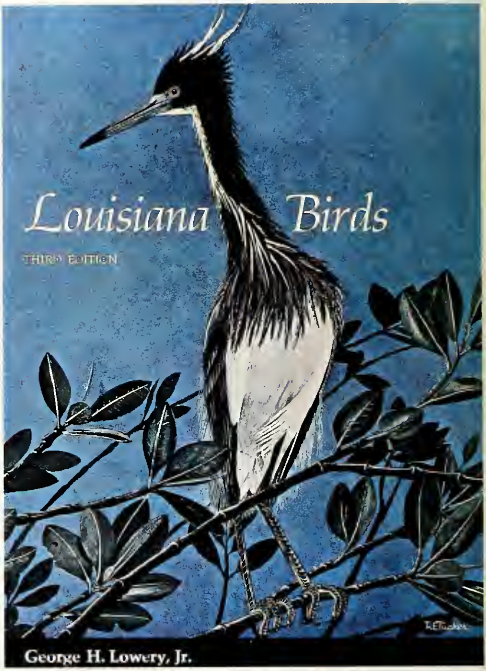




THE MAMMALS OF LOUISIANA AND ITS ADJACENT WATERS

By GEORGE H. LOWERY, JR.

Illustrated by H. Douglas Pratt



Louisiana Birds

THIRD EDITION

George H. Lowery, Jr.

Dr. George H. Lowery, Jr. author of THE MAMMALS OF LOUISIANA AND ITS ADJACENT WATERS, was the recipient of Louisiana's highest literary honor April 10 during the Louisiana Library Association's Annual Convention in Alexandria.

Presentation of the coveted medallion took place during the book dinner held in the Bentley Hotel.

Each year the Louisiana Library Association's Literary Award Committee considers numerous books on Louisiana as possible recipient of its annual award. Books are selected on the basis of merit, treatment of Louisiana life, and for their value to the permanent record of the state. Dr. Lowery's book THE MAMMALS OF LOUISIANA AND ITS ADJACENT WATERS was the unanimous selection of the award committee.

Dr. Lowery, who is a Boyd Professor of zoology and director of the Museum of Natural Science at Louisiana State University, is a former president and a permanent member of the executive council of the American Ornithologists' Union. He is also a member of the American Society of Mammalogists and numerous other scientific societies here and abroad.

His book on mammals is lavishly illustrated in both color plates and black and white photographs and drawings. It contains 588 pages and is priced at $15. Copies available are of the first edition.

Also in 1974, Dr. Lowery's third edition of LOUISIANA BIRDS appeared. In the completely revised edition, Dr. Lowery describes the 411 species of birds that have ben discovered in the state, including 43 species that have been discovered since the book was first published in 1955.

The new edition is 720 pages and richly illustrated, containing 14 full color plates, 99 photographs of birds, 14 full-page habitat photographs, 147 figures, and 16 bar groups showing the seasonal distribution of 411 species. It is available at $15 a copy.

ORDER FORM

TO: Louisiana State University Press, Baton Rouge 70803
Please send me_____copy (copies) of *Louisiana Birds* at $15.00 per copy. Also, send me_____copy (copies) of *The Mammals of Louisiana and Its Adjacent Waters* at $15.00 per copy. Check or money order for $_________is enclosed (Payment must accompany order. Louisiana residents add 3% sales tax.)

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Sportsman's Special Feature:

by Frank Davis

Lake Pontchartrain

Estimated to be over 5,000 years old, Lake Pontchartrain, the largest, inland, brackish-water lake in the South, was formed by the process of siltation.

History accounts that the Mississippi River thousands of years ago flowed through Baton Rouge directly into the eastern portion of what is now Lake Maurepas, but what then was the last sector of land before the open waters of the Gulf of Mexico.

As the river made its way out into the gulf, sediment it carried with it from two-thirds of the United States "silted out," forming marsh build-up on the southern and southeastern side of the river's trek. The build-up, now the bulk of Orleans, Jefferson, and St. Bernard parishes, eventually encapsulated a large open area of water. That water body encircled by the "new land" became Lake Pontchartrain.

Today, only two passes of the original natural flow pattern of the Mississippi River—the Rigolets and Chef Menteur—remain open to the gulf. Presently, Lake Pontchartrain contains 398,127 acres of surface water (622 square miles of lake). Eight major freshwater tributaries supply Pontchartrain and Maurepas with freshwater, and the Rigolets, the Chef, and the Industrial Canal provide saltwater which mixes to form the brackish blend.

Lake Pontchartrain forms natural boundaries for Orleans, St. Tammany, Tangipahoa, St. Charles, and St. John the Baptist parishes, and provides a major outlet for outdoor recreation for these and other parishes in the state.

Normal tidal fluctuations of one to two feet in Lake Pontchartrain are average. Average lake depth is 11 feet; maximum depth is 20 feet. Because Pontchartrain is such a shallow-water body, the slightest influence of wind, even more so than tides, affect water level height and can make the lake extremely rough in a relatively short period of time. The roughness, a hazard to boaters on the lake, can turn the water from "clean and clear" to "muddy and brown" in no longer than an hour.

Lake Pontchartrain is bisected by a causeway. It is traversed by pipelines and overhead powerlines. It is dotted with oil and gas wells. All these man-made structures, however, provide outstanding fishing habitat. Biologically, the easternmost section of the lake has the highest salinity; the western side has the lowest (at times, practically pure freshwater).

Pontchartrain is utilized year 'round for fishing, crabbing, shrimping, floundering, boating, diving, and skiing. Skiing and diving primarily are summer activities. Floundering is popular among shoreline fishermen with lights and gigs on warm nights. Shrimping in a portion of the lake is permitted during open season for both white and brown shrimp. Boating, as evidence by the number of launches which practically encircle the lake, is a year 'round activity. Crabbing, while partially seasonal, is done not only in open water but along the bayous and canals feeding the lake. And fishing, above all else, is the greatest, 365-day-a-year sports interest on Pontchartrain.

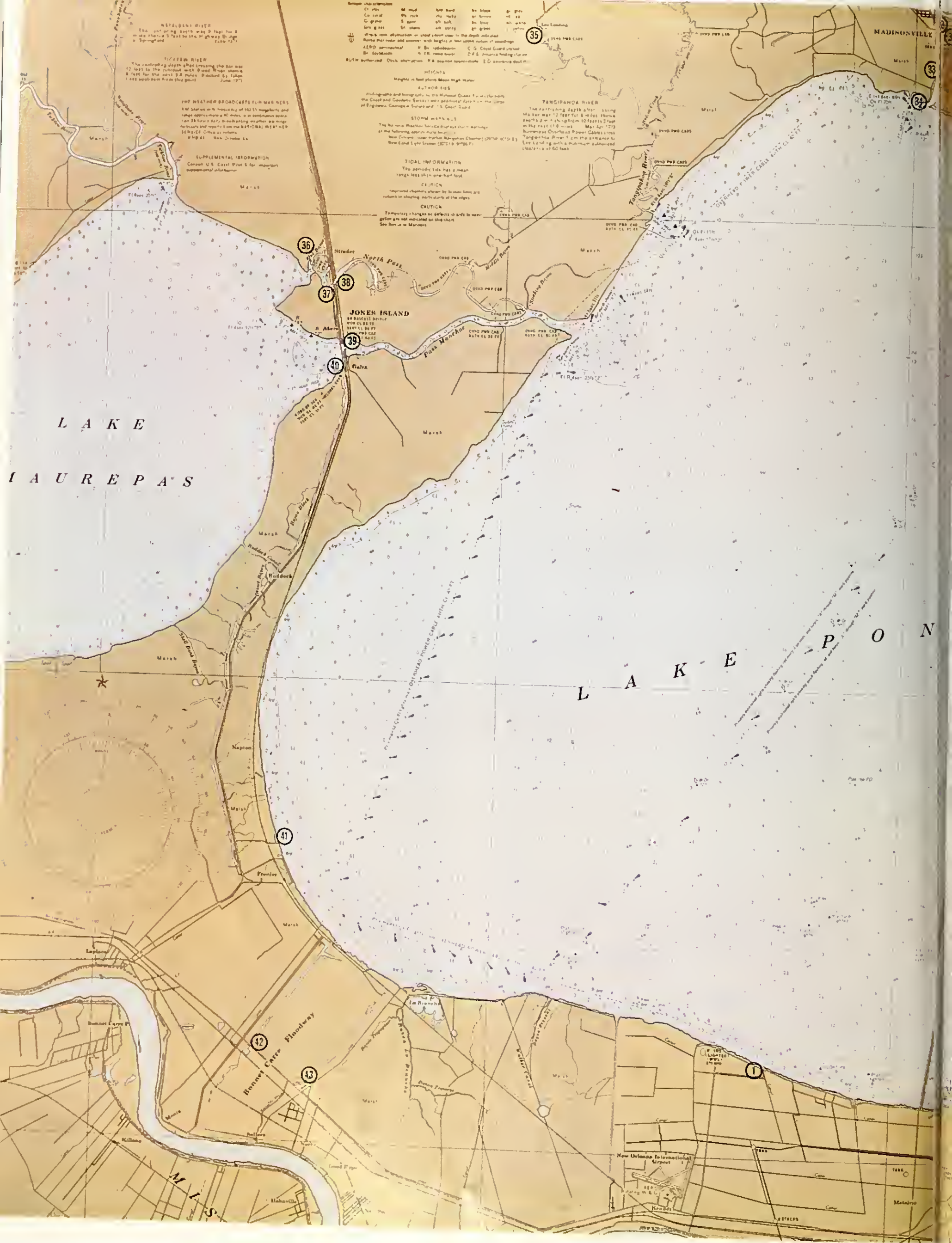
Almost any day of the year, anglers can pull in good catches of speckled trout, white trout, flounder, drum, sheepshead, redfish, croaker, jackfish, topsail catfish, and —in summer—tarpon.

As far as baits are concerned, nothing in Lake Pontchartrain is "special fare," since everything from freshwater lures and plugs to saltwater squid can take fish at the "right time." "Best spots" depend upon the influence of tides, winds, bottom conditions, and fish movement—one day, all the trout might be holed up near the Rigolets; the next, they may be foraging the bottom near the Causeway. Whichever the case, when fishing conditions in Pontchartrain are good, *fishing* usually is good.

As elsewhere in Louisiana, when rods and reels, or artificial baits are used, a license is required to fish Lake Pontchartrain.

The next two pages show the general area of the lake, complete with latest topo information courtesy of the U. S. Coast and Geodetic Survey. The information section of the Louisiana Wildlife and Fisheries Commission, however, has revised the map to include facilities—data markings at every accessible point into the major waterway. Designed exclusively for the sportsman, the list on page 18 outlines not only name and location of the facility, but services available at each site.

It is hoped this feature will serve the thousands of outdoorsmen who use Lake Pontchartrain as the Number One multiple-use recreation spot in Louisiana.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Lee Landing
TANGIPAHOA RIVER
TIDAL INFORMATION
CAUTION
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STORM WARNINGS
SUPPLEMENTAL INFORMATION
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North Pass
Middle Bayou
Strader
JONES ISLAND
Pass Manchac
Galva
Akers
LAKE
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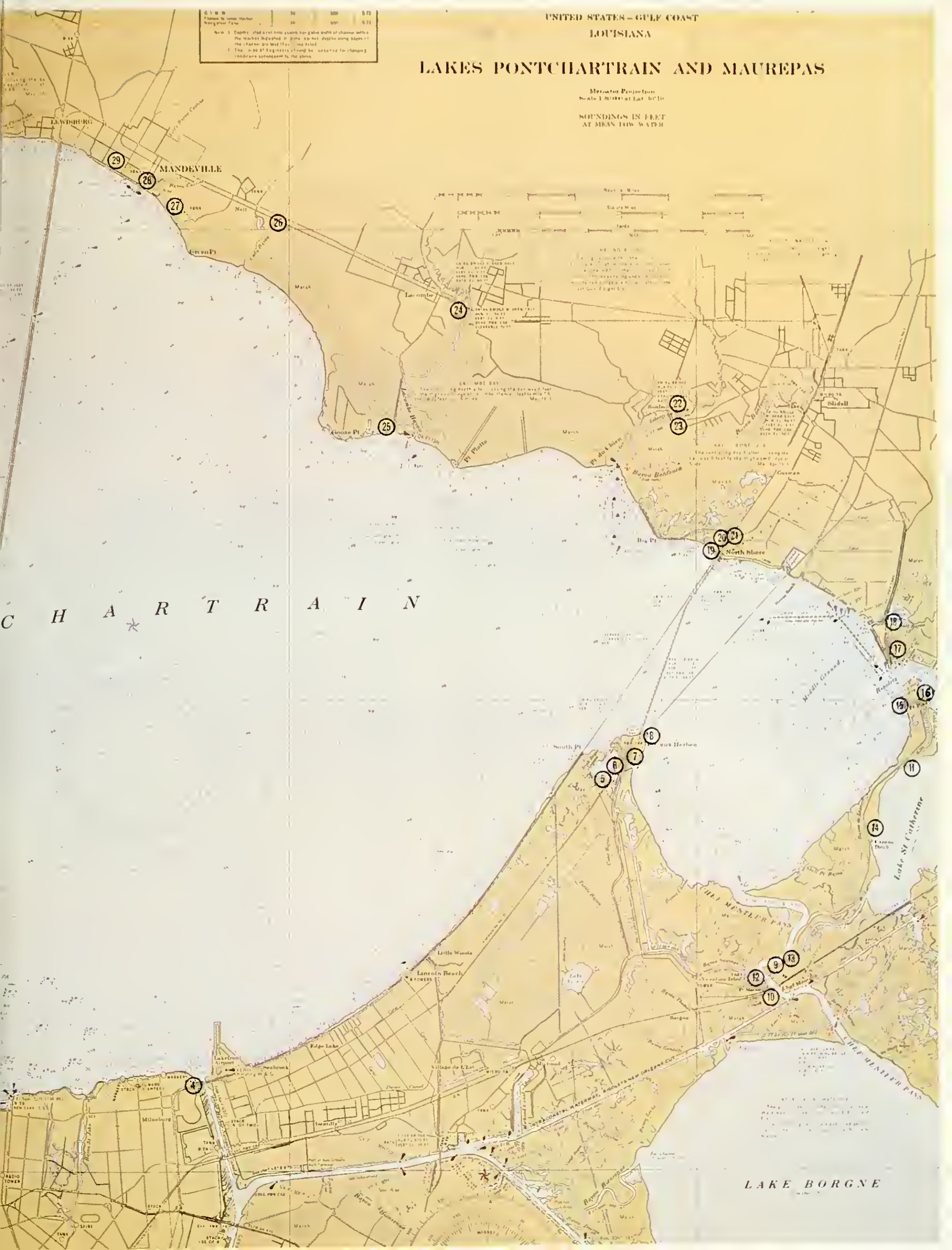
UNITED STATES – GULF COAST
LOUISIANA
LAKES PONTCHARTRAIN AND MAUREPAS
Mercator Projection
SOUNDINGS IN FEET AT MEAN LOW WATER
LEWISBURG
MANDEVILLE
Green Pt
Lacombe
Goose Pt
Pt Platte
Pt aux Herbes
Slidell
North Shore
South Pt
C H A R T R A I N
Little Woods
Lincoln Beach
Lakefront Airport
Seabrook
Milneburg
Edge Lake
Village de L'Est
Middle Ground
Chef Menteur Pass
Lake St Catherine
LAKE BORGNE
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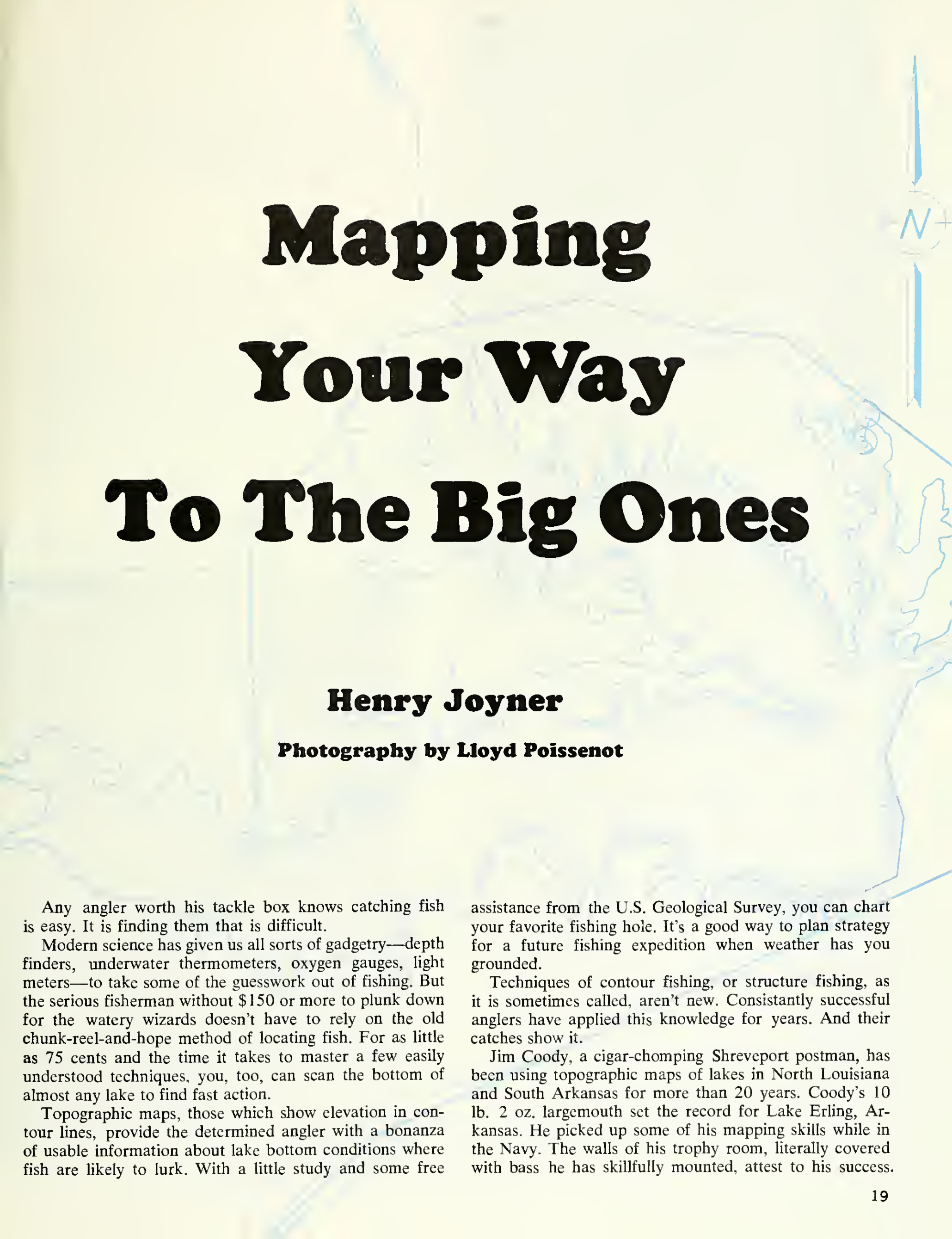
LAKE PONTCHARTRAIN FACILITIES DATA

	LANDING	Slab Launch	Mud Launch	Hoist	Launching Fee	Rental Boats	Rental Motors	Boat Storage	Fuel	Oil	Bait	Tackle	Ice	Refreshments	Parking	Restrooms	Playgrounds	Drinking Water	Bank Fishing	Electricity	Shelters	Tables	Fishing Pier	Trash Cans	Camping Areas	Supplies Nearby
1.	Williams Blvd. Public Launch	x													x				x					x		x
2.	Bonnabel Blvd. Public Launch	x													x				x					x		x
3.	Seabrook Public Launch	x													x				x					x		x
4.	West End Public Landing	x											x	x	x	x		x	x				x	x		x
5.	1-10 Access Ponds (Irish Bayou)		x												x				x							x
6.	Captain Rieders Place	x		x	x	x			x	x	x	x	x	x	x	x		x						x		
7.	Benny Larman's Place	x			x	x					x				x											
8.	Bayou View Marina	x		x	x	x	x		x	x	x		x		x									x		
9.	Marquis Brothers Marina	x		x	x			x	x	x	x		x	x	x	x		x		x				x		
10.	Fort McComb Marina	x		x	x			x	x	x	x	x	x	x	x	x		x	x	x				x		x
11.	Lake Catherine Marina							x	x	x														x		x
12.	Mike's Marina	x		x	x	x		x	x	x	x	x	x	x	x	x		x		x				x		x
13.	Chef Harbor Marina	x		x	x	x		x	x	x	x	x	x	x	x	x		x		x				x		x
14.	Lee's Place	x		x	x			x	x	x	x		x	x		x		x						x		
15.	Rigolets Marina	x		x	x	x	x	x	x	x	x	x	x	x	x	x		x						x		
16.	Fort Pike Public Launch	x													x	x	x	x	x	x	x	x	x	x		x
17.	Harbor Inn Marina							x	x	x														x		
18.	Sam's Place		x		x						x	x	x	x		x		x	x							
19.	Gilbert's Place					x	x				x			x	x									x		x
20.	Buck's Place	x			x				x	x	x	x	x	x	x	x		x						x		x
21.	Tite's Place					x	x				x															x
22.	St. Genevieve's Landing		x		x	x									x		x		x					x		x
23.	Zat's Landing								x	x	x	x	x	x				x						x		
24.	Lacombe Public Launch	x													x				x							x
25.	Lake Road Fishing Launch		x												x				x							x
26.	Big Branch Launch		x																x							
27.	Fontainebleau State Park														x	x	x	x	x	x	x	x		x	x	x
28.	Mandeville Lakefront Launch	x													x				x		x			x		x
29.	Mandeville Lakefront Seawall													x	x				x					x		x
30.	Riverside State Park	x			x										x	x	x	x	x	x	x	x		x	x	x
31.	Mire's Marina							x	x	x			x	x		x		x						x		x
32.	Madisonville Public Launch		x												x				x							x
33.	Madisonville Lakeside Inn		x		x	x	x	x	x	x	x	x	x	x	x	x		x	x					x		
34.	Tchefuncte River Launch	x													x				x		x			x		x
35.	Riverside Grocery and Marina	x							x	x	x	x	x	x	x	x		x	x	x				x		
36.	Owl Bayou Public Launch	x													x				x							x
37.	Manchac/North Pass Public Launch	x													x				x							x
38.	Manchac/North Pass Public Launch	x													x				x							x
39.	Rottman's Marina								x	x	x	x	x	x		x		x	x					x		x
40.	Pass Manchac Mud Launch		x																x							x
41.	Frenier-Manchac Launch		x																							
42.	Bonnet Carre West Launch		x												x				x							x
43.	Bonnet Carre Public Landing	x				x	x								x	x	x		x			x	x	x	x	x



Mapping Your Way To The Big Ones

Henry Joyner

Photography by Lloyd Poissenot

Any angler worth his tackle box knows catching fish is easy. It is finding them that is difficult.

Modern science has given us all sorts of gadgetry—depth finders, underwater thermometers, oxygen gauges, light meters—to take some of the guesswork out of fishing. But the serious fisherman without $150 or more to plunk down for the watery wizards doesn't have to rely on the old chunk-reel-and-hope method of locating fish. For as little as 75 cents and the time it takes to master a few easily understood techniques, you, too, can scan the bottom of almost any lake to find fast action.

Topographic maps, those which show elevation in contour lines, provide the determined angler with a bonanza of usable information about lake bottom conditions where fish are likely to lurk. With a little study and some free assistance from the U.S. Geological Survey, you can chart your favorite fishing hole. It's a good way to plan strategy for a future fishing expedition when weather has you grounded.

Techniques of contour fishing, or structure fishing, as it is sometimes called, aren't new. Consistantly successful anglers have applied this knowledge for years. And their catches show it.

Jim Coody, a cigar-chomping Shreveport postman, has been using topographic maps of lakes in North Louisiana and South Arkansas for more than 20 years. Coody's 10 lb. 2 oz. largemouth set the record for Lake Erling, Arkansas. He picked up some of his mapping skills while in the Navy. The walls of his trophy room, literally covered with bass he has skillfully mounted, attest to his success.

"The big ones," Coody says, "are usually found along old walls, road beds, at drop-off points, in stream beds, and under old culverts or bridges. Of course, you can't see these structures or natural formations from your boat.

"Unless you were familiar with the shape of the land before the lake or reservoir was flooded," he adds, "you're out of luck without a map."

Coody's well-worn maps are so thick with Scotch tape holding them together, they are barely legible. But by now, he has the "hawg holes" memorized. If you need visual reminders ,however, it is best to triangulate the hot spots on your map, associating them with shoreline landmarks.

Basically, contour fishing consists of fishing different levels of water where the lake bottom is broken up by different structures. Many new impoundments, such as Toledo Bend and Lake D'Arbonne, were formed by inundating old towns, farms, and homesteads. Once flooded, these structures became bass hangouts.

Other structures, including old creek channels, points, abandoned cemeteries, and ditches parallel to old road beds, attract bass in these man-made lakes. You can expect to find lunkers near points of land which jut far out into the lake.

Depth of the underwater geography is shown in lines following the earth's surface at consistant elevations. These are known as contour lines. Coody uses his wife's colored art pencils to shade in the area between contour lines. A different color is used for each elevation level.

"This gives me a colorful description of the shape of the lake bottom," Coody explains. "You can tell at a glance where the dips and rises are."

It is important to pay close attention to sudden drop-offs on the bottom when selecting your target area. Since we assume you are prospecting for trophy bass, you will come nearer to catching these fish on the dark side of sudden elevation shifts and near man-made structures.

These features can be found on most topographic maps made before the impoundments were flooded. Topos produced by the U.S. Geological Survey show ponds, lakes, and reservoirs in blue, and usually give a water level or spillway elevation. Man-made structures appear in black, contour lines in brown, and forests in green. Underwater contours are often shown on the survey's maps.

If it is not possible to locate a current map depicting conditions prior to the creation of the body of water, an old map or photostat of a topo made before inundation may be found locally.

Topographic maps are available from several sources, and in some cases you may secure them nearby.

Maps produced by the government cover every square foot of Louisiana, and, in most cases, they can provide you with the information needed for just about any lake in the state.

The first step is to get a map order form from the Central Region—Map Distribution, U.S. Geological Survey, Denver Federal Center, Building 41, Denver, Colorado 80225. This office will furnish you with the order blank and an "Index to Topographic Maps of Louisiana" free of charge. They stock maps of areas west of the Mississippi, including all of Louisiana.

> *"Topographic maps are inexpensive . . . and practically any fisherman can learn to read them."*

Standard quadrangle maps are priced at 75 cents each, with discounts on large orders. Service is good but allow several weeks for delivery.

If you are so eager to begin fishing with a map that you can't wait, you may be able to locate just the map you need from one of a dozen topographic map dealers found around the Bayou State. Most maps described in the survey's index are also available from those dealers. Local prices, however, may be slightly higher than those of the survey.

If you find it more convenient, check with one of the dealers listed below:

Abbeville:
  The Sportsman, 1915 South State St.
Alexandria:
  Allen's Blue Print & Supply Co., 415 Johnston St.
Baton Rouge:
  Baton Rouge Blue Print & Supply Co., 207 St. Ferdinand
Covington:
  Carol's Corner Bookstore, 328 East Lockwood
Crowley:
  Morrow's Sports Center, U.S. Highway 90 West
Galliano:
  Vidrine Office Supply, Inc., Highway One
Hammond:
  The News Mart, 103 North Oak
Houma:
  Houma Reproductions & Map Co., 550 South Van Ave.
Monroe:
  Monroe Blueprinting Co., Inc., 108 S. Grand
Morgan City:
  Morgan City Blue Print & Supply Co., 317 Fifth St.
  Shannon Hardware Co. Ltd., 606 Front St.
New Orleans:
  Photomaps, Inc. 412 O'Keefe Ave.
  The New Orleans Map Co., 110 Exchange Place
Shreveport:
  Glove Map Co., 206 Milam
Slidell:
  Louisiana Outdoors Publishing Company, 320 Pontchartrain Dr.

In addition to local map dealers, many Louisiana libraries maintain reference files of published maps.

When ordering your map, specify the smallest interval available. Maps with contour lines as close together as possible are best for contour fishing purposes. Lines shown in 10- to 20-foot increments are standard, but most experienced topo users prefer them with five-foot markings.

From another division of the Geological Survey, the interested angler can obtain additional information needed to chart a specific lake. Make your request for information to Map Information Office, U.S. Geological Survey National Center, Sunrise Valley Drive, Reston, Virginia 22092.

Cleo Robinson, using a map protractor on a topo, charts coordinates and makes notations guaranteed to pinpoint prime fishing areas.

Properly charting a topo map—and studying it! —can help an angler zero-in on some of the best fishing spots. Below, topo maps should be as standard a part of fishing gear as rods, reels, and tackle boxes.

Be sure to include the name of the lake and the state, parish, or township in which it is located. If it is a new lake or one that is under construction, the name of the creek or river being impounded should be included.

The Map Information Office will furnish you with a great deal of valuable information, including:

—a list of maps or charts showing the lake or reservoir in question and water depth information;

—a list of maps showing the area now inundated, including water level or spillway elevation required to trace an accurate outline;

—the location of the dam or name of the builder or owner of the impoundment from which this information can be obtained;

—a list of maps currently being revised or new maps in preparation of which advanced prints may be obtained; and

—a list of sources where information about maps showing water depth possibly may be obtained.

A new publication which may help improve your topo technique, called *Map, Line, and Sinker* (Stock Number 2401—02394) is available from the Government Printing Office, Washington, D.C. 20404. It is well worth 25 cents the government charges.

Outfitting yourself with proper topographic maps and taking time for a brief skull session with them before you hit the water, can save several hours of valuable bassin' time on the lake. With a topo in your tackle box, you are well on the way to prospecting for the big ones.

SHRIMP TREK

By Charles White

Photography by Lloyd Poissenot

In a continuing effort to learn more about the complex life history of shrimp, the Louisiana Wildlife and Fisheries Commission's Division of Oysters, Water Bottoms and Seafoods recently undertook a tagging program to unlock some of the mysteries of shrimp movement.

Past studies have shown that both brown shrimp and white shrimp spawn approximately one-half million to one million eggs in offshore waters. Spawning of brown shrimp takes place off the Louisiana coast at approximately 20 to 25 fathoms (120 to 210 feet). In the case of white shrimp, spawning occurs a little closer to the Louisiana coast, at approximately 10 to 20 fathoms (60 to 120 feet).

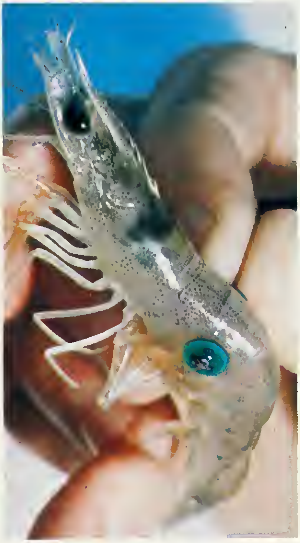
Approximately 24 hours after spawning, the semi-bouyant eggs hatch. The young, emerging shrimp begin an inshore drift which may last from two to four weeks. During this time, the small shrimp grow from near microscopic size to approximately ¼- to ½-inch long. Movement is governed to a large extent by tides and offshore currents. The small post larval shrimp enter the coastal estuaries along the coast. Once in the nursery grounds, they grow rapidly into juveniles. As the juvenile shrimp continue to grow, they gradually move toward deeper more saline water and finally return offshore to repeat the cycle.

Shrimp movement along the Louisiana coast has remained virtually a mystery for years. It has been generally suspected that movement of adult shrimp in Louisiana has basically been inshore-offshore. There had also been some speculation of an east to west movement of shrimp. This was based primarily on the movement of the commercial fishing fleet, which shows an east to west trend as the season progresses.

Early attempts to identify shrimp movement was by use of biological dyes. For years this method was the only technique available to biologists for this type study. The staining method was found to have certain limitations. Dyes, biologists learned, were retained for only a relatively short time. Consequently, data obtained through this technique was limited to short-termed studies.

With increased research into the life history of shrimp, efforts were directed at developing tagging techniques that would apply in shrimp work, as it had in fish and waterfowl tagging studies. The result was the development of disc tags (wheels) and a tagging study soon came into being.

The western coast of Louisiana was selected for the commission's initial tagging program. Of primary interest was the fact that much of the shallow estuaries of western Louisiana are classified as sanctuaries under the federal and state refuge system, and trawling is not permitted. Consequently, tagged shrimp released in these areas were free from trawling pressure.



Review of biological data collected throughout this region since 1966 gave strong evidence that a significant percentage of the commercial fisheries catch of western Louisiana (centered in the Cameron area) was dependent upon emigrating small shrimp from the sanctuaries to the west; namely, Rockefeller Wildlife Refuge, Ranier Wildlife Refuge, and Marsh Island Wildlife Refuge. If this were true, it was possible that a percentage of the Texas shrimp catch was dependent in part on shrimp grown in western Louisiana estuaries. One possible method of confirming these theories was by a tag-and-recapture program.

During the week of October 9 through 12, 1973, employees of the commission tagged a total of 3,123 shrimp in the picinity of Joe Harbor Bayou on Rockefeller Wildlife Refuge. Since this was a first attempt with this new and sensitive technique, considerable time was spent developing procedures. Problems were encountered in the project, as in most biological investigations, but, in retrospect, the program was highly successful.

The last shrimp was tagged on October 11. And the waiting began. There was some apprehension as to whether or not a shrimp could withstand the stress of being tagged and if the tag would hamper movement activity. It wasn't long before all doubts were alleviated, for on the morning of October 13, Travis McDowell of Lake Charles, Louisiana, boated the first tagged shrimp in the south end of Calcasieu Lake. This shrimp had been tagged October 9 and had traveled approximately 44 miles in only four days. From this day on, returns began coming in daily.

Three returns have been reported from Texas waters, the farthest being taken seven miles west of the Louisiana line. This is the farthest tag return reported to date, with the particular shrimp travelling 72 miles in 16 days, 4½ miles per day. ,

Through December 31, 1974, 53 tagged shrimp have been reported. All returns except two were taken west of the release point. With the exception of one shrimp taken in Calcasieu Lake. all returns were fairly close to the coast, within 30 feet of water.

The data from this program, although preliminary, is significant. Two theories on the western movement of small shrimp from the refuges into the Cameron and Texas fisheries have been confirmed. Other implications involving shrimp movement may be significant.

It is hoped this data someday will form the basis for a new and expanded approach to shrimp management in Louisiana and other Gulf states.

REQUIEM

FOR A LEGACY

By Frank Davis

Photography by Lloyd Poissenot

The startling reality of it is . . . this year may be the "year of decision." Never before in history has opposition to hunting, trapping, game management, and other supported methods of functional conservation been so great. And unless hunters and trappers get off their haunches to fight for what they believe is right, hunting, trapping, and game management may soon fade into, at best, nothing more than memories that once were.

Somewhere in one of the books of quotations, an adage goes something like . . . "and the pen is more powerful than the sword."

I can remember these words never being more obvious nor more pertinent than they are today. Hunters, with their guns akin to "the sword," are being rapidly overpowered by letter-writing protectionists, who are fighting them with ballpoint "pens." And at stake in the battle is a legacy, a birthright, a bequeathance called hunting. But more than just a legacy, hunting is the only method of game management which consistantly works to conserve and protect the species in the wild.

Be aware, however, that the first paragraph of this article—exactly as it is written—is no revelation to anti-hunting factions. What's more, the hunting/game management relation is laughed about, ridiculed, and intensively disputed by anti-hunting proponents because they have seen outdoor writers put the same words on paper over and over again, ever using the same arguments, ever being gentle in defense.

Sadly, though, the writings seem never to be supported by these persons for whom the words and warning are written. So when mere verbage reaches the hands of those who do not understand hunting and management, and thusly oppose it, it is altered and misinterpreted by the opposition and clouted much stronger than the English language which makes it readable.

On the other hand, the victor, the protectionist—Friends of Animals, Fund for Animals, Animal Protection Institute—when he tells the hunting story rarely tells it straight, rarely bases it on fact, or rarely relates it only on its merit. Practically everything about hunting which ends up in print from the protectionist is incident, taken out of context from exception rather than rule. But it's motivation journalism, embellished with "unification words" and adjectives like *blood*-bath, *ripped* flesh, *oozing* guts, *tortureously mangled* bodies, *violently decapitated* animals. Each piece of writing, its syntax and composition, is written in emotionalism and sensationalism designed to move the reader!

But . . . the reader is buying it and the opposition is winning. The adjectives, the flowery brutality, the prefabricated sentimentalisms, the "pitifulness" of the "poor animal" in the story of hunting impress many more people and provoke them to action and allegiance much more effectively than does the journalistically soft-pedalled, "don't-make-no-damn-waves," "hide-your - head - in - the - sand - and - ignore - them" writings of textbook-edited outdoor writers.

As a result of this oldschool temperance, it appears the hunter is not just losing the battle, but the whole stinking war!

As an outdoor writer, I am in a position where I can be almost certain I have in my files—and have read—practically every piece of propaganda circulated by anti-hunters and anti-trappers. It is unfortunate, however, that myself and other outdoor writers who work daily in the field of conservation *have to read* practically every piece of that propaganda. Because . . . it makes us sick to the stomach and aggravates nervous ulcers.

When I read a book, I usually feel that the author is informed and professional. But when I read a book printed by a reputable publisher and can't help believe, by its very content, that the whole volume was rushed off the press, bound, and hurried to the public because controversy it was certain to arouse and sensationalism of composition would sell great numbers of copies, even though the page-after-page accounts comprise nothing more than isolated, warped, out-of-context reshaping of sound conservation practices designed to lambast 15,000,000 persons in this nation who call themselves "hunters," that makes me upset!

I spent this week reading *Mankind* (the book to which I refer), pamphlets by Alice Herrington's Friends of Animals, booklets from the Animal Protection Institute, American Humane Education Society, Defenders of Wildlife, and the Humane Society of the United States, along with a host of other letters and flyers. Each group, each member of the group, admittedly is an arch-enemy of the sport of hunting, the business of trapping, and the entire scope of conservation, animal longevity, and preservation of the species by nature of the very arguments they pose. Each group, and each member of the group, is staunch opposition. And frightfully, they execute the opposition well.

During the year-long period of research leading up to this article, several things became shockingly obvious. The hunter and trapper complain *to each other* about what a dirty deal all the anti-hunting/anti-trapping issues really are. And don't you know, each agrees with the other?

The opposition, meanwhile, complains *about the hunter and the trapper* to people they've never seen before! And at the end of the complaint there is at least one more adversary with whom the hunter and the trapper have to contend.

Sportsmen pay for conservation—both game and non-game species benefit. Sportsmen put up the money which purchase wetlands. Sportsmen pay for coastal regulation studies. Sportsmen pay for new habitat. That sportsmen hunt and trap is nothing more than a clear understanding that *they understand* how their investment in habitat and species works.

Yet . . . the opposition reverses this thinking because a shotgun or a steel trap is the tool used to manage the investment. The opposition takes the money they collect—and it's a staggering amount!—to launch "anti" campaigns, write "anti" books, buy "anti" advertising, and pay platforming expenses and administrative salaries. Occasionally, it has been said, the opposition "helps wildlife" by spaying a few dogs and cats!

This has all been said before, though. Hundreds of writers have been telling the hunter and trapper this same story for years. The opposition certainly is not new. Still, it is amazing that hunters, trappers, and conservationist, seem so mild-mannered and meek that in turning the cheek and remaining non-vocal they display such confidence in the continuation of their sport . . . or is it control . . . or is it apathy? Or . . . don't they believe that writers and biologists and fish and game commissions around the United States know what they are saying?

As written earlier in this piece, this may well be the year of decision. And there are questions to be answered. Is the hunter and trapper really oblivious to threats against him? Are attacks by protectionists, bleeding hearts, and the so-called "little 'ol ladies in tennis shoes" real? Is the adversity something to be dealt with in the future, or is it present now? Are the opponents radicals, or are they supported and committed to their cause?

Noted writers agree that while hunters' money was buying wetlands in Canada for waterfowl, opposition money was buying Madison Avenue advertising agencies. It's like the old burn - down - the - hen - house - to - find - a - better - way -of - cooking - chicken trick!

Opponents to hunting, biologists note, could care less about leased lands in Canada, because land leasing cannot be stopped. But if they can stop the reason why the lands are leased, deeds for the property would not be worth the paper found in a Western movie villan's pocket! And that is what appears to be happening —not tomorrow, now. By all indication, the hunter is already a minor majority!

Just last week (and what I'm about to relate sometimes makes me feel I'm on the wrong side of the fight) I spoke before a sportsman's league. I virtually appealed to them concerning the opposition's threat to hunting and trapping. Would you believe that at the end of a two-hour, ulcer-annoying oration, I walked out of the room with about only five out of 103 men convinced the threat was a serious one? The others, and I quote them, chimed in, "Aw, them kooks ain't nuttin' to worry 'bout!"

Just for the record . . . those so-called kooks, armed with ballpoint pens and fat checkbooks, are writing their legislators (and free pamphlets for public distribution). Their letters are coming in *against* hunting and trapping on an average minimum of 10 to 1! And their financial support far outweighs contributions by sportsmen. Statistically, that's something to worry about.

As one New York advertising executive put it, "If you add political pressure to money spent, with that kind of pull and financing the opposition could make the public want cold sores and hemorrhoids!"

Gary Sitton, in public relations with the National Shooting Sports Foundation, wrote an article recently after researching the support various organizations have behind them.

"Even more impressive than plain dollar figures are the growth records for the various groups over the past five years," Sitton penned. "If we leave Defenders of Wildlife out—their $7.5 million grant in 1973 would make their growth curve meaningless—we come up with a 276.5 per cent combined increase in gifts, grants, dues, and contributions for the five remaining outfits between 1968 and 1973. No matter how you break that number down, the bad guys have beaten the good guys silly, since during the same period hunting license sales increased by only one to four per cent per year!

"Individually, the growth records work out to: American Humane Education Society—up 33.1 per cent; Humane Society of the United States—up 199.4 per cent; Friends of Animals—up 220.7 per cent; Fund for Animals—up 1,333.5 per cent; Animal Protection Institute—up 1,642.1 per cent! As they used to say in the cowboy movies, read 'em and weep!"

That's the opposition, and it is anything but disorganized. Sitton also believes, along with the bulk of the National Shooting Sports Foundation, that at some point in the future further coordination might involve some hefty sacks of cash.

The entire anti-hunting/anti-trapping movement has intensified beyond belief. But not only does the opposition want to stop all hunting, it wants to stop trapping (at last count eight bills were up before Congress to outlaw leg-hold traps,) and it wants to stop gunning (a new proposal is that all handgun ammunition be banned—since much of it is interchangable with hunting rifles it will do away with, for starters, hunting with a .22 caliber).

It is truly sad to note that much of the damage slammed against hunting is directly related to and caricatured by the one individual even the sportsman despises—the game violator. But the opposition is smart. For all illustrative purposes, however inaccurate, they depict the "game violator" as the regular garden variety "hunter."

When I was a kid I got into a fight with a bully up the street. I had always been taught that the best method of negotiation amounted to pacifying the situation, and if ever the worse came "turn the other cheek." One afternoon, the bully poled me right across the left eye. Immediately, in my best mode of pacification, I turned the other cheek. Five minutes later, I was a boy with shaken faith in pacifism and temperance, and the only kid on the block with *two* black eyes.

Serious sportsmen believe the time for toleration is long past, and the hunter and trapper just can't do with another black eye. At this point, hunters and trappers still outnumber their adversaries. But the chips are down.

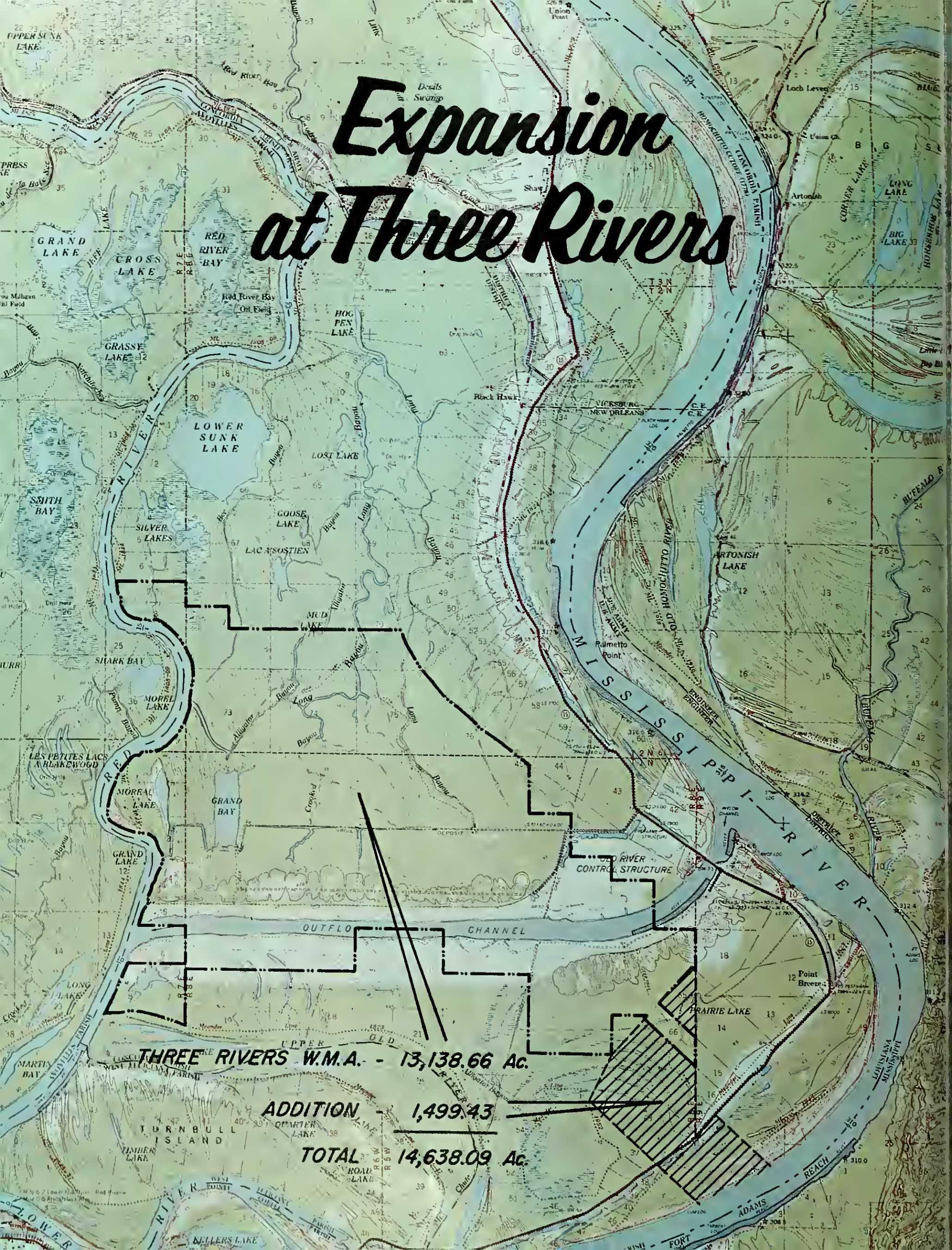
Using the methods of the anti-hunter/anti-trapper advocates, sportsmen must begin writing letters (not petitions) to the government; they must begin fortifying organized sportsmen's groups; they must start funding conservation and wildlife organizations; they must begin educating—even if preaching is necessary—anyone who will listen to the truth about hunting; they must abandon the attitude of tolerance and begin fighting back before they are beaten down.

Because it is suspected among those who know, that this period, the time now, is likened to a wake, where the kin sit idly by, helpless, sharing inner confusions of what is to be no more. And if nothing significant is done, nothing dramatic, nothing sensational—done the way Cleveland Amory and Alice Herrington do it—certainly the funeral will follow the wake.

It's frightening to think that what will have died in the interim will be hunting, trapping, and everything related to it. But should this occur, let the hunter and the trapper shed no tears. For he will have brought about knowingly...this requiem for a legacy.

Opposite page, left: This large hog, though not "wrapped in celophane," will feed a family of six for several months. Opposite page, top: Revenue from the fur crop he will harvest will also feed this trapper's family for several months. Right: But . . . the hunter and the trapper both stand to lose if the active "anti" lobbies continue their attack—unopposed!

Expansion at Three Rivers



The Louisiana Wildlife and Fisheries Commission continued its program of land acquisition with its purchase March 14 of 1500 acres of land abutting the Three Rivers Wildlife Management Area in Concordia Parish. This latest acquisition brings the total acreage of that management area to 14,638, with the new tract providing one mile frontage on the Mississippi River on the eastern side of the management area.

Act of Sale took place in Governor Edwin Edwards' office. Cost of the additional tract was $232,500, or $155 an acre.

The tract purchased consists primarily of bottomland hardwoods offering excellent habitat for deer, squirrel, swamp rabbit, woodcock, and waterfowl. Other forms of wildlife found on the area include nutria, beaver, mink, otter, raccoon, opossum, bobcat, and fox. Borrow pits on the land will provide excellent sport and commercial fishing.

The tract was purchased from funds appropriated to the commission by the legislature in 1974. The land selected is in keeping with the commission's policy of obtaining lands that adjoin present wildlife management areas when possible.

Three Rivers Wildlife Management Area received its name due to its close proximity to the Mississippi, Old, and Red Rivers. It is located about 10 miles south of Shaw, a community on Louisiana Highway 15 approximately 30 miles south of Ferriday. This highway on the east side provides access to the area by vehicle. It is also accessible from the west by boat via the Red River.

At the present time camping is allowed only on designated areas. Two campgrounds are available at present, with further developments planned for the future.

The new addition to the Three Rivers Wildlife Management Area brings the total amount of land purchased outright by the commission, since the acquisition program was begun in 1960, to 203,839 acres, all of which is permanently dedicated to recreational use by the public. When added to the 66,000-acre Pass-a-Loutre Public Shooting Grounds that was donated to the commission, total acreage owned outright amounts to 269,839.

Director J. Burton Angelle expressed thanks on behalf of the commission, sportsmen, and all persons interested in outdoor recreation to Governor Edwards and the legislature for making funds available to acquire the new tract and others which are now in negotiation stage.

The commission feels it is imperative to acquire as much additional land as possible as funds are made available and land suitable for wildlife management can be obtained at a price that is reasonable. The addition to Three Rivers Wildlife Management Area is considered important because the land is of the hardwood bottomland type now being cleared at an alarming rate for agricultural purposes.

Above: Governor Edwin W. Edwards signs the Act of Sale making the Three Rivers WMA addition official. Right: Louisiana Wildlife and Fisheries Commission members (from left) Marc Dupuy, Jr., Donald Wille, and Chairman Harvey Clay Luttrell talk with Edwards about the commission's land acquisition program.

PIE'S POTPOURRI

By: Marian "Pie" Pendley

Cookout and barbecues have always been popular—especially in the South and Southwest. But today they are more popular than ever before.

Every would-be outdoor chef has cooked chicken or steak over the traditional barbecue pit . . . but there are those who hesitate when you mention seafood and a hot grill. This need not be, as the wonderful world of Louisiana seafoods lends itself to outdoor cookery with easy-to-do, easy-to-enjoy recipes. For starters why not try Shrimp Kabobs or Grilled Shrimp Gourmet. They're simple and guaranteed to be crowd pleasers.

SHRIMP KABOBS

1½ pounds peeled, deveined, uncooked shrimp
1 can (13½ oz.) pineapple chunks, drained
1 can (4 oz.) button mushrooms, drained
1 green pepper, cut into 1-inch squares
¼ cup chopped parsley
¼ cup oil
¼ cup lemon juice
¼ cup soy sauce
½ tsp. salt
¼ tsp. pepper
12 slices bacon

Place shrimp, pineapple, mushrooms, and green pepper in a bowl. Combine oil, lemon juice, parsley, soy sauce, salt, and pepper; mix. Pour sauce over shrimp mixture and let stand for 30 minutes, stirring occasionally. Fry bacon until cooked but not crisp. Cut each slice in half. Using long skewers, alternate shrimp, pineapple, mushrooms, green pepper, and bacon until skewers are filled. Place kabobs in well greased wire grills. Cook about 4 inches from moderately hot coals for 5 minutes. Baste with sauce. Turn and cook for 5 to 7 minutes longer or until bacon is crisp. Makes 6 servings.

GRILLED SHRIMP GOURMET

2 lbs shrimp
1 cup oil or melted butter
2 tbsps. soy sauce
½ cup lemon juice
½ tsp. salt
1 tsp. hot sauce

Cut through shell of de-headed shrimp and remove black vein. Wash shrimp thoroughly and drain. Place in bowl and cover with marinade made from butter, soy sauce, lemon juice, salt, and hot sauce. Place in refrigerator until ready to cook. Drain shrimp and spread in hinged broiler or broil on foil. Cook slowly on low heat until shrimp are pink and opaque. Serves 6.

Looking for a recipe a little different and slightly unusual for that catch of fresh fish. How about giving it a smoky flavor. Either of the following recipes will win you compliments. One takes a little longer to cook, but it's well worth the time.

FISHERMAN'S DELIGHT

2 lbs. pan dressed trout, or other small fish
2 tbsps. lemon juice
2 tsps. salt
2 tsps. salt
¼ tsp. pepper
1 lb. sliced bacon

Clean, wash, and dry fish. Brush inside of fish with lemon juice and season with salt and pepper. Wrap each fish with a slice of bacon. Place fish in well greased, hinged wire grills. Cook about 5 minutes from moderately hot coals for 10 minutes. Turn and cook for 10 to 15 minutes longer or until bacon is crisp and fish flakes easily when tested with a fork. Makes 6 servings.

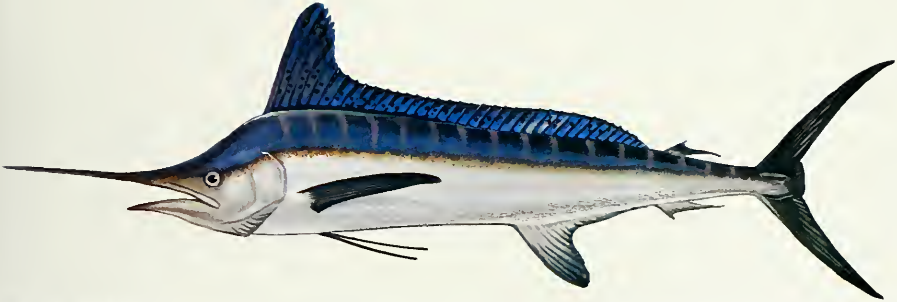
BARBECUED FISH

2 red snapper or bass (about 4 lbs.)
1 stick butter
3 tbsps. grated onion
2 tbsps. parsley
2 tbsps. Worcestershire
1 tbsp. hot sauce
2 lemons, sliced

Season fish and place on sheet of heavy foil. Melt butter in saucepan. Add onions, parsley, worcestershire, hot sauce and lemons; stir well. Pour sauce over fish. Seal foil making sure there is no leakage. Place on a grill with a hood, if possible. Turn every 20 minutes, being careful not to tear the foil. Cook for 1½ hours. Remove from foil and place fish on grill. Leave on grill for 10 minutes; turn and leave on another 10 minutes, basting with sauce. Serves 6.

Wood chips give smoke flavor to the fish. Soak chips in water at least 1 hour before using, so they will give maximum smoke and not burn too rapidly. If chips flame up, add more wet chips. Remember—never overcook your fish. When it flakes easily, it is ready.

Cooking time varies with weather, intensity of heat, amount of moisture in chips, type of grill, and distance of fish from heat. There are no set rules—just experiment and enjoy!



ILLUSTRATED BY DUANE RAVER, JR.

WHITE MARLIN

The white marlin, one of the more dramatic big game/deep water sportsfishes, occupies a home range comprising a great portion of the Atlantic Ocean and the Gulf of Mexico. While the fish does not reach as large a size as other spearfishes, it is by no means second-rate in looks, biology, and popularity.

Named from a shortened form of "marline spike," a pointed nautical device used to separate strands of rope while splicing, the species generally shows more green than most marlins. Its upper body is a brilliant greenish-blue, but coloration changes abruptly to silvery white at about the level of the lateral line. Light blue vertical bars run the length of the fish, but they quickly fade and eventually disappear soon after the fish dies.

Of all the marine species, the white marlin, according to Dr. Maurice Burton, International Wildlife Institute, is believed to be the fastest fish in the water. It can reach speeds of up to 50 miles per hour because of its "streamlining." When pursuing a meal at top speed, all its fins except the tail fin are folded down into grooves in its body so that no bothersome obstructions prohibit easy passage of water across its shape. Additionally, its long beak forms a highly effective cutwater.

Marine biologists believe that the white marlin follows set migratory patterns regulated solely by food availability. In the past, white marlin catches in the Gulf of Mexico made headlines, but that happens no longer. With each passing summer, July through October being prime months, large catches make for fine offshore-Louisiana sportsfishing.

Incidentally, white marlin first were discovered in the gulf in the mid-50's when the U. S. Fish and Wildlife Service began to explore angling potential along the 100-fathom curve which comes close to South Pass below New Orleans. The species is caught both in bluewater and greenwater offshore.

Like its relatives (sailfish and broadbill swordfish), the white marlin uses its spear to cripple or kill its prey. Favorite foods include herring and squid, but it also will eat practically anything it can capture, especially anchovies and jacks.

This dietary versatility makes fishing for white marlin, where bait is concerned, an easy matter. The most popular natural baits are small mackerel, bonito, herring, mullets, and other small but elongated species. As well as natural baits, the fish will strike almost any kind of artificial lure from spoons to feathers to plugs to jigs.

Anglers prefer the female to the male in the white marlin species since females consistently are larger than the males. Deepwater enthusiasts who fish for whites regularly use tackle ranging from 50-pound test to 125-pound test.

The big fish strikes hard, runs fast, makes repetitive jumps, and can tail-walk in a strong surge almost 100 feet across the surface of the water. Depending upon which technique works best on which day, the preferred method—trolling—for white marlin is to skip the bait behind the boat, either at a normal swimming pace or so fast it barely skims the surface chop. Strikes also are produced when the bait is allowed to drift behind the wake, then gathered in slowly to imitate an injured fish. Because its pelvic fins are far forward and on level with its pectoral fins, the white marlin can turn suddenly in a tight circle to strike a bait more than just once.

Like all billfish, the white marlin is dangerous to handle as it is being boated. One account tells of a fisherman leaning over the gunwale to grab hold of the bill, when all of a sudden the fish surged forward with a snap of its tail and drove its bill straight through the angler's chest.

Most species taken on rod and reel average about 50 to 60 pounds. Maximum recorded weight for the white marlin on sportsfishing tackle is 161 pounds.

According to the Louisiana Outdoor Writers Association, Dennis L. Good holds the state record, first-place marlin with a 134-pounder he boated in July, 1967. But . . . as long as there are fishermen around and as long as one summer follows the other, there will never be a monopoly on *Number One.*

Coyote
(Canis Latrans)